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Seven-Year Plan for the Development of the Economy of the German Democratic Republic (DDR) - The Main Direction of Socialist Reorganization of the Most Important Enterprises and Branches of Industry, of Building, Transport, and Wholesale Trade in the German Democratic Republic.

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The Fifth Party Congress of the Socialist Unity Party of Germany (SED) laid down the line of economic development in the DDR until 1965, and it showed the workers the way to the solution of the chief economic problems and to the victory of Socialism.

The definition of these great aims determines the content of Socialist reorganization. Reorganization is to be carried out on the highest level of technology, using all the discoveries of science and all the more up-to-date processes. This will insure the attainment of the goals and the successful performance of the tasks which are established in the law on the Seven-Year Plan, and makes a definite contribution to carrying out the decisions of the Fifth Party Congress.

The cooperation of the workers in planning and carrying out Socialist reorganization in industry, construction work, transport, and communications is a living example of the realization of the slogan, "Plan together, work together, rule together!"

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The Fifth Plenun of the Central Committee of the Socialist Unity Party of Germany in its decisions defined the content and principal aims of reorganization. In these decisions, which point the way, the content of Socialist reorganization is characterized as follows:

"Socialist reorganization consists of the most rational organization of production on the basis of the highest level achieved by science and technology and of the full utilization of the creative initiative of the workers."

Starting from these decisions, reorganization measures were laid down which are now carried out speedily.

The leap to a higher quality of Socialist production must be made by means of Socialist reorganization.

The criteria for the success of Socialist reorganization are its efficiency, the high level of labor productivity, the technical level of production, and the reduction of the present profit margin of industry.

Everyone must clearly realize that the success of the reorganization steps will be measured against these immutable criteria.

A determined effort must be made to reach and to surpass the goals set in the plan. there must be a constant striving to achieve the same results without using up all the investment funds provided in the plan. This requires firm discipline, exemplary order, and the utmost economy in all enterprises and institutes and in the governmental and economic structure.

Principles of Socialist Reorganization

Socialist reorganization will be carried out successfully if the entire labor process is thoroughly rationalized, if it is precisely measured and calculated over and over, if technical processes are repeatedly subjected to critical analysis and are improved, and if all possibilities for mechanization and automation are exploited.

Every enterprise has the task of making the most of its time and improving the products of its labor as quickly as possible. Nothing is to be postponed to tomorrow which can be done today. All measures are to be subordinated to the goal of achieving a high increase in labor productivity, of raising production quickly, and of guaranteeing the best quality along with low production costs.

After the passage of the law on the Seven-Year Plan for the development of the economy in the years 1959 to 1965, the real battle for orderly and rapid achievement of Socialist reorganization begins. That is the most important part of the task.

In this battle to achieve reorganization, new knowledge will become available which must continually be taken over into the reorganization plan. It is important to develop all reserves and to guarantee the most rational utilization of machines and installations in all branches of industry and in all enterprises. In the course of Socialist reorganization, the effective results of investments are constantly to be increased; by using the initiative of the workers in the enterprises, the investments are to be made in accordance with principles of strictest economy. The measures for reorganizing the enterprises came into being with the active cooperation of broad strata of the workers. In carrying out the reorganization, it is of still more importance to utilize the broad knowledge, experience, and initiative of all workers.

The enterprises, government and economic officials, and Party and mass organizations must, during the process of Socialist reorganization, continually direct themselves to what is new and must take advantage of new possibilities and reserves which arise as types and standards are established and as industries are centralized and specialized.

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Socialist cooperation of workers, engineers, and scientists is to be used as a chief method of Socialist reorganization, and the activity of Socialist brigades is to be promoted and is to be supported by the research institutes and the scientific-technical centers.

The most rational utilization of existing machines and installations is the first and most important task in all branches of industry and in all enterprises.

The establishment of standard types and standard parts, the centralization of production, and the specialization of industries are the prerequisites for a more rational organization of production by individual industries.

The tempo of work on standardization of parts and types of products, development of prefabrication techniques, and production of structural units is to be greatly increased. The extent to which standardized parts are used is an important criterion of the quality of new developmental work and of new designs.

The number of standards must be quickly increased in order to broaden the basis for specialization of production and to make possible the application of more productive techniques.

Transport routes must be cut to the shortest possible distances. Wherever possible, transport speed must be increased. The possibilities arising from mechanization and automation are to be fully exploited for this purpose.

The program of centralizing production and of specializing our industries must be carefully planned, so that dislocation in production and supply will be reduced to a minimum. Stopping the production of certain items must not occur as a result of specialization until production in the enterprises affected has reached the necessary volume or stockpiling is adequate for the period of transition.

Centralization of production and specialization of industrial enterprises are linked with the division of labor among the countries of the Socialist Camp, and are to be effected in conformity with the decisions of the CEMA. Commissions.

In the process of reorganization, the following further principles are constantly to be stressed and to be called to the attention of all workers:

Each product must conform to the highest level of technology in both capacity and quality and thereby correspond to the world standard. The time limits for the development of new products and for putting them into production are to be reduced as much as possible. Each enterprise must firmly establish the times at which old products are to be suspended from production and new products are to enter production.

Each production process must be so set up that a high increase in labor productivity and the lowest production costs can be achieved through the smallest feasible use of materials and of labor forces.

All possibilities of mechanizing and automating the production departments and the divisions of enterprises are to be fully exploited.

Every kind of support is to be given to the research organizations of the Research Council. The Chamber of Technology (Kammer der Technik) has to place the achievement of reorganization at the central point of its work.

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Socialist reorganization must lead to working conditions which afford maximum safety and the greatest possible reduction of heavy physical labor and of work that is dangerous to health. This will prove the great social difference in Socialist production's utilization of the latest scientific and technical discoveries, as contrasted with capitalist production.

Tasks of Reorganization

To guarantee that reorganization will be achieved on the highest level of technology and will encompass the greatest possible mechanization and automation of production, the following tasks are to be given special attention:

1. The scientific bases of production are to be expanded more and more, and industries are to be put in a position to fulfill their tasks with complete self-sufficiency and to reach the highest technical level of products and technology in the shortest possible time. Through further development and strengthening of the scientific-technical centers in the State Planning Commission, in the VVBs(Vereinigungen Volkseigener Betriebe - Associations of People-Owned Industries), and in the Economic Councils of the Bezirk Councils, the fulfillment of the chief technical tasks is to be assured for all branches of industry.

2. Still existing dislocations in production are to be overcome in a short time through reorganization. This applies particularly to electrical engineering products, to control, measuring, and regulation techniques, to foundry techniques, and to forges, as well as to the production of raw materials for the chemical industry.

3. Measurement and regulation technology is to be developed first of all. A scientific-technical center for questions of automation is to guarantee that the most purposeful utilization will always be made of the possibilities of mechanical, electrical, hydraulic, and pneumatic regulation and control of production processes.

4. A basic principle is the effort to change from discontinuous to continuous finishing processes. The first thing is to replace workshop finishing by suitable forms of group and assembly-line finishing in machine construction. The processing time is to be reduced to a minimum through these means.

5. In machine-tool construction, the production of semi-automated and fully automated machines is to be increased, chiefly on the basis of standardized unit construction.

6. All technical variants of casting are to be utilized, and the proportion of tools produced by the die-casting process is to be rapidly increased. Machines for casting processes are to be brought to the highest level of technology; heavy-duty machines for working plastics are particularly to be developed and put into production.

7. The equipment and machines presently in the industrial enterprises are to be modernized to the greatest possible extent. The speed of operation is to be increased. For modernizing the existing equipment and machines, the machine-construction industry will produce attachment units and auxiliary equipment. Special workshops are to be set up for the general repair and modernization of machines and equipment.

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8. Radioactive and stable isotopes are to be used more and more for measurement and regulation as well as for the improvement of materials.

9. The establishment of standards for equipment and tools is required very soon. Enterprises are to specialize in the production of equipment.

10. The use of welding techniques is steadily and systematically to be extended; semi-automatic and fully automatic welding processes are especially to be promoted.

11. Permanent-mold casting, pattern casting, precision and pressure casting are particularly to be developed, and the time periods needed for the production of molds and cores are to be appreciably reduced through the application of modern techniques. The disorganized dispersal of foundry production is to be ended in accordance with a definite plan.

12. In the textile industry, new techniques are to be used and further developed.

13. Computation centers equipped with the most modern electronic apparatus are to be established in order to achieve a rapid solution of scientific problems. Computation stations are to be set up to mechanize the administrative routine and the accounting system of industry, of the financial system, and of wholesale trade.

Responsibility for Carrying Out Socialist Reorganization

In the first place, the leaders of enterprises are responsible for carrying out the great tasks of Socialist reorganization. They must to it that all reorganization measures are put through are put through on a high technical level and lead to maximal economic achievements.

The heads of factories and of Party and trade-union organizations must explain to the workers the importance and aim of Socialist reorganization and must fully develop and utilize the intitiative of the workers in solving problems.

The Associations of People-Owned Enterprises (VVBs)

These must make sure that the centrally led ..... are duly reorganized.[1] The enterprises ..... the world level ..... are the directing and organizing centers for the planned reorganization of the various branches of industry and are responsible for giving each enterprise of their branch a compellingly clear perspective and a task position arising from the reorganization program.

The speedy accomplishment of all assignments for the mechanization and automation of production requires that the VVBs create examples of complex mechanization and automation in their branches of industry and thus show the way to the use of progressive techniques applicable to the special conditions of the branch of industry.

The Ministries for Construction, the Ministry for Transport, the Ministry for Post and Telecommunications, and the Ministry for Trade and Supply must furnish the leadership for carrying out Socialist reorganization in the enterprises, the VVBs, and the branches under them.

The Councils of the Bezirke and Kreise must see that the reorganization measures in the industrial enterprises, in the building industry, in local transport, and in the supply and trade enterprises are carried out in accordance with the highest level of science and technology.

Local offices of the state are responsible for solving local problems which arise from Socialist reorganization.

The Finance Offices are to organize the monetary control in such a way that the funds provided for reorganization are used frugally and with maximum effectiveness.

The State Planning Commission is responsible for checking on the fulfillment of the plans and for solving the principal tasks of Socialist reorganization. It must organize a strict check on close adherence to the goals and tasks laid down in the Seven-Year Plan and in the reorganization plans. In carrying out the reorganization plans, the State Planning Commission must bring local and handicrafts interests into line.

The Divisions and Sections of the State Planning Commission are to give guidance and support to the VVBs and to the local government officials in carrying out the reorganization programs, and are to evaluate and pass on to them promptly the new knowledge and experience gained.

The Basic Organizations of the SED have the right to check with the enterprises and business managements on the operation of the reorganization measures. It is of primary importance that each Party organization foster what is new and wage a sharp battle against all obstacles.

The Mass Organizations, particularly the trade unions, carry a heavy responsibility in realizing the reorganization plans. They help transform the reorganization measures into the essence of Socialist competition and into the core of the work of activists, efficiency experts, and inventors.

In production, it is important to link the struggle of the brigades for the title "Brigade of Socialist Labor" with the realization of the reorganization plan. It means directing Socialist competition to the following goals of Socialist reorganization:

Products:

the shortening of research and development periods and the most rapid application of new techniques to production;

the most effective use of the newest technological processes;

increasing the utilization of existing capacity and uncovering all reserve capacity;

the most efficient organization of production;

raising labor productivity with a concomitant lowering of costs of production;

reducing the amount of material used in each product.

Carrying out Socialist reorganization requires greater qualifications on the part of the workers; they must master the new processes and methods and must have solid technical qualifications; therefore prompt measures must be taken to make sure that they acquire the necessary qualifications.

Besides the existing State educational institutions, additional training facilities must be created in the enterprises. In addition to the industrial academies of the large industrial enterprises, there are to be [illegible] study groups (Lernaktive), and seminar groups formed in many enterprises, so that the workers can in a short time achieve higher qualifications, acquire multiple skills, and be able to pass on to others their extensive knowledge in various fields of science, technology, and culture.

The Research Council of the DDR and the Specialists' Associations of the Kammer der Technik must aid in achieving technical-scientific advances and in assuring that the workers in the enterprises become fully qualified.

All economic functionaries must continually broaden their political, economic, scientific-technical, and organizational knowledge and capacities in order to cope with their growing tasks.

Therefore, immediate steps to qualify workers must be taken, which are proposed in the following documents:

"Theses of the Central Committee of the SED on Socialist development of the school system in the DDR."

"Proposals of the Central Committee of the SED for qualifying workers and for Socialist development of vocational education in the DDR."

Mechanization and Automation

A leap to more productive techniques must be made through the mechanization of work processes, of factory departments, and of entire production stages.

More than 450 automated production departments or stages are to be put into operation.

This includes continuous production processes which are to be extensively automated in chemical plants, such as hydrogenation plants, petroleum-processing plants, and ammonia synthesis. In another 134 chemical enterprises, reorganization is to be carried out in such a way that most of the production processes will be mechanized and automated.

As for power plants, 138 transformer substations and hydroelectric power plants are to be converted to remote control.

Remote control from the main distributor station is to be installed for the pump-fed power station Hohenwarthe II, with a total capacity of 320 MW.

Switch galleries and boiler control positions are to be combined in thermal power plants; industrial (closed-circuit) television is to be used in the Hirschfelde power station, among others.

In the coal industry, deep wells and underwater pumps are to be converted to remote control for the regulation of water removal.

Forty-five dryers for raw coal in briquette plants are to be supplied with automatic regulation.

A completely automatic oil-tempering installation for structural steel used in pre-stressed concrete production is to be set up by the steel mill VEB Stahl -und Walzwerk "Wilhelm Florin" Hennigsdorf.

A fully automated sand-preparing installation is to be constructed in the foundry VEB Giesserei Copitz.

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Fully automated television-tube production is to begin in VEB Glaswerk Friedrichshain.

The transition to industrial building methods is to be pushed in the construction industry. Three hundred and twenty construction assembly lines for apartment construction, 45 construction assembly lines for farm buildings, and 60 Taktbaustellen[2] for industrial buildings are to be set up. Furthermore, 485 semi-automatic mixers for mortar and concrete are to be put into operation.

Another 374 automated production lines are to be set up, including a line in the Eisenach automobile plant for the automated production of crankshafts and the automated working of cylinder blocks, an automated line for the refrigerator program in VEB DKK Scharfenstein, and an automated line for dip-soldering of stamped-out switches in VEB Rafena Radeberg.

In industry, 1,500 machine assembly lines and 1,600 manual assembly lines are to be set up and put into operation.

To improve the stock of machines in the metal-processing industry, 11,000 new machine tools are to be introduced between 1959 and 1965.

In the textile industry, more than 600,000 new spindles and 20,000 new Jacquard looms are to be introduced.

In industry in general, more than 160 new large enterprises or plant departments are to be set up. Among them, to back up the chemistry program, are the petroleum combine in Schwedt, the gypsum sulphuric-acid factory at Coswig, and the synthetic fiber combine in Guben.

In the Eisenhütten combine at Stalinstadt, a steel mill and rolling mill are to be constructed.

A semiconductor plant is to be built in Frankfurt/Oder.

In light industry, a paper factory in Schwedt/Oder, two cotton-spinning mills, and 20 plants for making board are to be erected.

In addition, more than 260 building materials factories are to be set up.

Utilization of New Raw Materials and Changes in the Way Raw Materials are Used

The way in which raw materials are used is to be fundamentally altered through the reorganization. At the same time, the amount of raw materials used in each product is to be reduced. For that purpose, new raw materials are to be extensively produced, and new, lighter, and cheaper materials are to be introduced through new development and new designs. At the same time, the quality and technical level of products are to be raised by changing the way in which raw materials are used.

In the metal-working industry, pre-refined (vorveredelte) steels and new materials are to be used. This fundamental change in the preparation of raw materials and basic materials for the metal-working industry requires a greater use of light sections, which metallurgy must produce in the required variety. While machine construction increases production about 225 percent,* the use of rolled steel is to be increased only about 166 percent. This means, for example, that in the centrally managed machine-construction industry the use of rolled steel is to be reduced from 129 tons per million DM of gross production value in 1958 to 96.5 tons in 1965.

* ca 225%

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On the other hand, the use of aluminum is to be increased to 218.4 percent, and the use of plastics, particularly for the manufacture of machine-construction products, is to be increased to about 350 percent.

The use of raw materials is to be appreciably reduced through the rapid development of miniature construction components.

In the textile industry, the direction is towards increasing the part played by completely synthetic fibers from 1.8 percent to 8.1 percent of all textile fibers used.

In the course of the Seven-Year Plan, reducing the use of wood has great importance. Specifically, the use of lumber by the building industry and the furniture industry, and particularly for crating, is to be reduced. In place of lumber, the production and use of fiber board and hard board will be increased 860 percent, concrete products will be increased 216 percent, and concrete ties 248 percent. In increasing building operations to 207 percent, the use of wood per million DM of total building costs is to be decreased from 149.3 cubic meters to 86.4 cubic meters.

In covering the requirements of industry, of other businesses, and of the populace for heating, the production of gas and the use of fuel oil are to be increased more than average. The part contributed by gas and fuel oil to the total primary energy consumed is to be increased from 2.4 percent to 6.4 percent.

In achieving all this, machine construction has important tasks. The production of continuous-flow heaters to cover the requirements of the populace is to be increased 119 percent, and the production of gas heaters is to increase 61 percent. Necessary arrangements for using gas for domestic heating are to be made.

To use the presently available quantities of petroleum, the machine-construction industry is to develop and produce various types of equipment, principally boilers and burners and measuring, regulation, and control instruments, as well as auxiliary pumps.

Tank cars which can be heated and tank trucks must be produced for the transport and storage of fuel oil.

This will initiate a rearrangement in the use of primary energy sources and of chemical materials. This rearrangement must lead to an extraordinary increase in productivity, to an improvement of fuel supply and a reduction of its cost, and to an increasing variety of finished products of the chemical industry.

Tasks of Research and Technology

The technical level of products and also the techniques of production will definitely be determined by the results of scientific research.

Basic research in the institutes of the German Academy of Sciences, in the institutes and research laboratories of the institutions of higher education and in the institutes belonging to industry is to be strengthened so that the required lead over production is continually assured.

In particular, increased work is to be done on the following problems:

The use of atomic energy; the development of heavy-duty reactors;
controlled fusion of lighter nuclei, particularly of hydrogen nuclei.
Extensive development of isotope technique.
Basic research in the field of photochemistry.

Broadening of research in the field of electrochemistry.

Working out of new catalytic processes.

Further development of electron and ion optics, particularly the electron microscope.

Development of vacuum metallurgy and development and testing of methods for producing pure substances, particularly for semiconductors.

Development of metal ceramics.

Further development of aromatization processes and of the technique for producing pure aromatics for synthesis plants.

Research in thermal fission processes, particularly for the production of olefines.

Technical advances in industry will develop the requisite rapid tempo only if the scientific bases of production are strengthened without loss of time. For a rapid raising of the technical level and the quality of products, and in the interest of introducing new high-production processes, all research, development, and design capabilities are to be fully exploited and are to be adjusted to specific tasks. The requirements must be quickly met that will enable our products more and more to determine the world level in such products.

All research and development laboratories belonging to industry have the task of raising the productivity of machines, equipment, and industrial installations, and of completing the transition to optimal production units, and of utilizing light construction methods and thus bringing about a reduction of specific weights.

Apparatus are especially to be developed which, on the basis of new technology, will make traditional processes obsolete and will result in a sudden raising of labor productivity.

In all new development work, the principles of health protection and labor protection and the newest scientific knowledge of labor health are to be rigorously observed and applied.

Research, development, and design offices of industry have the following tasks:

to develop new measuring, regulating, and control devices;

to put the technique of producing semiconductors on a sound basis.

Electronic components, such as storage (memory) cores, ferrites for microwave technics, circuit ferrites, germanium rectifiers, germanium transistors, and diodes for highest frequencies, have priority in development and are to be constantly kept at the level of the latest technical developments.

Gas turbines up to a capacity of 25 MW are to be developed.

The necessary conditions are to be created for the transmission of electric current of 380 KV. The lag in developing the necessary high-tension switching equipment must be quickly overcome.

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In the chemical industry, techniques for the production of organic chemical materials, particularly aromatics, are to be developed on a petroleum basis, and this is a priority.

A sure process for the production and processing of high-pressure and low-pressure polyethylenes must be worked out quickly in the research installations.

Experiments for producing further epoxy resins and unsaturated polyesters are to be carried out, and the methods for producing polyvinyl acetates[3] are to be perfected.

The technique for the production of silicon oils and silicon rubber is to be improved. Completely synthetic fibers are to be further developed.

The most modern installations for brown-coal mining, for rolling mills, and for forges are to be made available by the machine-construction industry. The technical gap in the production of chemical installations and air-conditioning installations must be overcome by the year 1962.

Equipment for the building industry and the building materials industry must, by its technical perfection and the degree of mechanization, make sure that the high production goals of the building industry are reached.

To improve the traditional techniques of light industry, machines with greatly increased capacity are to be developed. Needed machine assemblies are to be perfected for the new textile techniques, and the still existing gaps in equipment . . . . . .[4]

In electric-power construction projects, all technical prerequisites are to be satisfied for the production and testing of 100-MW block units. The development of larger-capacity units is to be accomplished with due attention paid to processes used abroad and to the primary energy basis in the DDR, which is changing.

In railroading and in machine construction, the technical conditions are to be achieved for the transition to diesel locomotives and electric locomotives.

Modern passenger coaches of great comfort are to be developed.

For air transport, a short- to medium-distance commercial airplane is to be developed for short take-off and landing strips and is also to have great economy in operation.

In the building industry, prefabrication methods using components weighing two and five tons are to be further developed.

Model buildings are to have priority. The necessary facilities, such as experimental shops, model sections, model shops, are to be erected in all enterprises.

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While protecting the principle of frugality and maintaining firm discipline, each enterprise must carry out Socialist reorganization in the time set and thereby insure the achievement of the economic and political aims of the Seven-Year Plan.

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Socialist reorganization is to insure that in the period of the Seven-Year Plan more goods, worth at least 178 billion DM, are produced than were produced in the year 1958. The (annual) production of consumer goods by industry must be at least doubled during this period.

In the Seven-Year Plan, an accumulation increase of at least 18 billion DM is to be achieved through reorganization measures.

Sixty billion DM will be invested during the Seven-Year Plan for carrying out Socialist reorganization in industry. Each investment project must be prepared with great care in order to obtain the greatest return for this expenditure.

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Through Socialist reorganization, an increase in gross production of at least 188 percent is to be insured in the years from 1959 to 1965, and labor productivity in industry is to increase at least 9 to 9.5 percent.

Socialist reorganization measures will satisfy the prerequisites for overtaking the per capita industrial production of West Germany within the period of the Seven-Year Plan.

By exploiting all the potentialities of Socialist conditions of production, Socialist reorganization will lead to a definite improvement of the workers' living standard.

II. Socialist Reorganization of the Most Important Enterprises and Branches of Industry, of the Building Industry, and of Transport, Communications, and Wholesale Trade

Metal-Working Industry

The development of machine construction will influence to a high degree the development of the entire economy of the DDR. By making available the requisite means of production, machine construction will furnish the prerequisites for carrying out the chemical program, for expanding the energy basis, for industrializing the building industry, and for the Socialist reform of agriculture. Therefore machine construction must produce equipment representing the highest technical development, which will insure a high degree of mechanization and automation in all branches of the economy. Valuable industrial products and technical articles required in daily life are to be provided in adequate amounts to supply the populace. The greatest exports of the DDR are to be machines and equipment of a high technical level designed for export trade.

For this reason, the production of the metal-working industry is to be raised ..18 percent, and in the centrally directed enterprises it is to be increased .25 percent.

In order to guarantee a balanced development of machine construction, the present disproportions are to be removed by 1961. Therefore production in the VVBs, which chiefly produce export goods, is to be increased .60.5 percent. Spare-parts production is to be developed so that, beginning in 1960, the requirements for variety and quality will be met. Spare parts for products which are no longer made must be manufactured in special plants or workshops.

The use of human and machine labor is to be decreased through the introduction of more rational processes of finishing, as well as improvement in the organization of production, so that the following increase in labor productivity and reduction of production costs will be achieved:

	Raising of Labor - Productivity	Reduction of Production Costs
1958 - 1961	to 141.8 percent	15.04 percent
1958 - 1963	to 177.4 "	23.18 "
1958 - 1965	to 221.4 "	30.23 "

By 1961, the world standard is to be reached or is to be set by all important products, particularly new electrical products and measuring and regulation devices.

Research and development work is to be so organized that, by 1961, 2,900 new products will go into production in the centrally directed machine-construction industry. The production of obsolete types is to be dropped.

In all machines and equipment, the latest safety devices and technical discoveries are to be employed.

Material-saving construction methods are to be incorporated in research, development, and design work. Assembly of prefabricated machine parts is to be used more and more.

Miniaturization of components is to be promoted, particularly in the branches of electrical engineering.

To speed up development work, the experiences of foreign countries in design and technique are to be thoroughly evaluated, and documentation is to be exchanged between countries of the Socialist Camp; difficult points are to be worked out through international cooperative groups for research and development. Direct cooperation between institutes and enterprises is to be strengthened and directed towards joint contributions to the solution of technical problems.

In machine construction, at least 3,500 standard types are to be worked out by 1962. Standardization will bring about a reduction of the number of types, construction sizes, and output stages of products, and will open up additional possibilities for using standard components.

Existing machines and equipment are to be modernized, using standardized construction assemblies, in order to raise the degree of mechanization and automation. Additional facilities, such as interlinked assemblies, well organized stock rooms, and the like, are to be developed and put into operation. The general overhaul and modernization of machines and equipment of machine-construction enterprises is to be carried out on a production-line basis (serienmässig). Central workshops and enterprises are to be set up for this purpose. Modern measuring and control instruments are to be installed for better utilization of existing machines and installations.

Socialist reorganization in machine construction must make sure that the existing dispersal of production is overcome. This will be accomplished by centralizing the finishing of similar products and by specializing the the enterprises. In this way, the production of individual parts and of assemblies is to be centralized. To expand the capacity of consumer industries, particularly the electrical industry, 14 new highly mechanized large-scale plants are to be built. In 24 enterprises, production capacity

is to be considerably expanded through new construction in parts of the plants, and in more than 100 enterprises the same thing is to be accomplished through replacement of old equipment.

The production per square meter of manufacturing area is to be increased at least 75 percent in centrally directed machine-construction enterprises through investment and reorganization measures.

The part played by series production in total production is to be increased by 1965 as follows:

	1958	1965
Part played by single-item production	24 percent	14.5 percent
Part played by small series production	28.6 percent	24.5 percent
Part played by large series production	47.4 percent	61 percent

Mechanized work is to increase so that 45 percent of the factory workers by 1961 and 52 percent by 1965 will be working in mechanized production processes. Automation of the work performed by manual labor is to be developed so that in 1961 three percent and in 1965 six percent of the production workers of the machine-construction industry will be in automated departments or in automated machine assembly lines.

For this purpose, at least 30 automated production stages are to be set up, as well as 2,700 assembly lines, of which 950 will be machine assembly lines and 1,450 will be manual assembly lines.

The stock of machine tools is to be renovated by the addition of some 110,000 new machine tools and the retirement of obsolete machines by the year 1965 (42,500 are to be added by 1961) so that the part played by machines of rating No. I and rating No. II will increase at least to 50 percent.

Automatic machines are to increase from four percent to at least 16 percent by the introduction of 22,000 automatic lathes, automatic presses, and single-purpose machines for intermittent- flow production lines and continuous-flow production lines.

The supply of milling machines is to be increased two and a half times and of non-cutting shaping machines five times. Thus the part played by non-cutting shaping machines is to be raised to 30 percent by 1965. Production per machine is to be increased at least 70 percent by introducing machines of greater capacity and through small-scale mechanization (Kleinmechanisierung), modernization of existing machines and equipment, and the use of standardized and normed equipment, and by doubling tool-edge time.

New technical processes and proved new methods, such as patterncasting and lost-wax casting, finishing rollers, extrusion molding, precision forging, dipping, electro-erosive engraving, grooved milling machines and taper-foot roller cutter, milling with ceramic cutting tools, multiple-chisel planes, striking-tooth cutters, coil winders, electrical and machine removal of burrs, glazing rollers, copying loops, jet flanges (? Strahlläppen), Superfinehen (sic),[5] and heat bonderizing are to be introduced as far as technically feasible.

The use of raw materials in machining is to be reduced an average of 25 percent through intermediate pattern-making and the use of pre-profiled materials in all cases where this is feasible.

Replacement swages in sufficient numbers are to be provided in order to achieve continuous production in forging plants. The tool-edge time of the swages is to be increased about 50 percent.

In the field of sheetmetal working, the introduction of bands, blanks, and intermediate patterns is to be mechanized and automated by using self-starting feeding equipment. Finishing lines are to be set up for the production of perforated pieces. Special presses, cutters, and edgers, automatic stretching and planing machines, flattening extrusion presses and percussion extrusion presses in great numbers are to be introduced into forming processes.

Standardized construction components, prefabricated equipment, and unitized equipment based on norms are to be manufactured in specialized plants or departments of enterprises.

Lending stations for equipment and tools are to be established in the industrial centers, particularly in Karl-Marx-Stadt by 1960; in Berlin, Erfurt, and Leipzig by 1961; and in Magdeburg, Halle, and Dresden by 1962.

Standardized equipment, standardized construction components, equipment norms, and prefabricated machine parts must be introduced in all plants of the metal-working industry in order to speed up modernization and to relieve the machine materials departments.

The production of welded designs is to be increased in the centrally directed machine-construction plants from 680,000 tons in 1958 to 1,800,000 tons by 1965, whereby the ratio between riveted designs and welded designs is to increase from 1 : 1.3 to 1 : 5.

The part played by automatic welding is to increase from 30 percent in 1958 to 50 percent through better utilization of existing welding equipment and through the annual addition of at least 200 new UP automatic welding machines.

CO_2 shielded arc welding for use in vertical and overhead locations, as well as in fully automatic welding of thin seams, etc., is to be increased through the addition of 200 welding machines in 1960.

In the construction of chemical apparatus and of containers, in welding light and nonferrous metals, as well as in spot welding, the part played by argon-shielded arc welding is to be increased through the addition of 300 newly developed standard welding machines.

In order to increase the use of economically operating transformers in welding, calcium-base electrodes are to be produced, beginning in 1960, which can be used in welding with alternating current.

In order to make greater use of resistance welding, 2,150 new resistance welding machines with auxiliary equipment are to be introduced into machine construction by 1965.

Fastening of metals by adhesives (kleben) is to be used increasingly, particularly in connection with light construction methods where components are to be fastened together.

The expense of hardening processes is to be greatly reduced and the quality of the hardened parts is to be raised by greater use of gas carburization and of induction and flame hardening.

Assembly techniques are to be made more rational by using line and block assembly. Assembly facilities are to be centralized, and in this way the best possible utilization of mechanized and automated equipment is to be achieved.

From now on, design must take account of the requirements of such methods, and must be directed to the mechanization and automation of assembling.

In out-of-doors assembly work, completely electrified assembly equipment is to be utilized on large building sites.

Quality control is to be improved through greater use of measuring and testing equipment. Automatic machines are to be used for measuring, testing, and sorting mass-produced articles.

Quality controls are to be brought up to modern standards of production through the use of statistical quality controls and through improvement of modern testing methods based on electronic, pneumatic, and non-optical systems and on isotope technique.

One hundred and twenty gamma defectoscopes using iridium 192 and cobalt 60 as the irradiation sources are to be brought into use by 1962. Modern rooms for testing with isotopes are to be constructed in the key enterprises of industrial centers, which will guarantee non-hazardous work with radioactive isotopes. Individual responsibility for checking on radiation hazards in the place of work is to be promoted everywhere.

For a rational improvement of the finishing of products, semi-automatic and fully automatic surface-finishing processes are to be introduced, particularly in electroplating, nitrating of surfaces, carburization, chrome-plating, surface-finishing through bonderizing and sulphinization (Sulphinisieren), and in the production of sprayed coatings for metals and plastics.

Electrolytic smoothing and polishing, electrostatic lacquering, and Strahlläppen are to be used.

Heavy Machine Construction

The most important branches of heavy machine construction, such as machine-tool construction, the production of building machinery, and the manufacture of equipment for the chemical industry, have special importance for the reorganization of industry. The production of machine tools is to increase in value to 254 percent in 1965 as compared with 1958. In order to insure the automation of individual branches of the machine-construction industry, production is to be increased in 1965 as compared with 1958 as follows:

Automatic and semi-automatic machine tools	to 302 percent
Precision machines	to 375 percent
Special machines	to 470 percent

Moreover, the most important thing is to overcome the dispersal of production. Therefore, on the basis of 229 standard types for cutting tools and 153 standard types for non-cutting shaping machines, 27 central factories for machine parts and construction assemblies are to be set up by 1965, of which 23 will be completed by 1961; 55 product-control assembly lines, 104 manual assembly lines, and 45 machine assembly lines also will be put into operation.

The part played by series production is to increase to 83 percent of total production. The most important feature of the technical measures is the renovation of the stock of machines. In the years from 1959 to 1965, 4,000 new machine tools are to be put into operation. In addition, 618 modernization projects are to be carried out. The transition to high-production methods is to be made through the introduction of special machines. By 1961 in 18 enterprises, for example, grinding with slideways grinding machines will be replaced by milling, and in 15 enterprises casehardening will be replaced by induction hardening. Of the machine tools to be newly installed, turret lathes, automatic lathes, bedplate millers, slideways grinding machines, and drill units must constitute at least 41 percent. By 1964, 588 new developments and further developments are to be carried through to completion in order to achieve the highest technical level. By 1962, 50 percent of these developments are to reach the production stage. The important points in development projects are the following: (a) partial automation and full automation through the development of self-operating machines; (b) development of auxiliary equipment to the level of mechanization and the range of utilization of machines and equipment; (c) greater precision in work; (d) improvement of service, maintenance, and safety.

The following developments are to be quickly put into production: automatic multiple-die crank presses with feeding devices, safety controls, a friction clutch, and a pressure of 630 tons; automatic hydraulic presses and deep drawing presses with programmed control and welded press frames; milling machines of unit construction with programmed control or control by magnetic or perforated tape.

In order to make possible the increased use of plastic materials, the following new developments are to be completed by 1962: automated presses and machines for plastics; batteries of piston extrusion presses; screw extruders of 200-mm diameter; double screw extruders; automatic die-casting machines; and preplasticizing equipment for the processing of thermosetting plastics and thermoplastics. Standardized series of vacuum shaping machines and automatic air-pressure machines are to be put into production by 1961 for making thermo-plastic hollow ware and for working thermoplastics in sheets and plates by modern drawing and stretching processes. To cover the needs of the plastics processing industry, the production of these machines is to be increased to 413 percent in 1965 as compared with 1958.

Eight completely specialized enterprises will be set up in the most important regions so that the work of repair and modernization of used machine tools can be carried out without loss of time. Through the VVB Werkzeugmaschinenbau, centralized customer service and repair facilities are to be installed in all production enterprises making machine tools.

Labor productivity is to increase 123.3 percent in 1965 in comparison with 1958. Production costs are to be reduced 35.34 percent in the same period.

In the production of tools and equipment, the great dispersal of production inherited from the capitalistic period is to be overcome. In particular, the regulation of the 216 private enterprises of various types which are outside the VVBs is to be strengthened. Production in equipment construction is to be increased 258 percent in 1965 in comparison with 1958. The important point in all this is the production of standarized and unitized equipment, standardized construction components, norms for equipment, and equipment from prefabricated machine parts.

Gross production per square meter of factory space is to be increased to 134 percent by 1961, 155 percent by 1963, and 197 percent by 1965.

In the most important industrial areas, coordinating factories are to be set up in order to assure the centralized manufacture of equipment.

The production of cutting machine tools is to be increased 193 percent in the course of the Seven-Year Plan, including an increase of 212 percent in special tools and 160 percent in series-produced tools.

The existing gaps in powered clamping devices, step-process tools, broaches, ground tapping machines, cutting and shaving tools, small-scale tapping machines, and abrasives with a grinding speed of more than 50 meters per second are to be closed by 1963. By improvement in design, by alloying basic materials, and by thermal treatment, the edge-life of tools is to be increased as much as possible while increasing the cutting speed 30 percent.

In the production of tools, particularly of standard tools, the workshop principle of production is to be superseded as far as possible and a transition made to "complex" manufacture.

By 1961, the production of boring jigs, spiral drills shaped without cutting, metal slitting disks, hard-metal turning tools, and cutting dies is to be completely automated or in some instances partially automated. To improve the organization of production, 10 manual assembly lines will be put into operation by 1961 and 24 by 1965, 10 machine assembly lines by 1961 and 40 by 1965. To improve the sadly overage stock of machines belonging to the VVB, 2,386 new machines (800 of them high-production special machines) are to be introduced and 1,200 machines are to be modernized.

In addition, the VVB Werkzeugmaschinen is to develop and produce special automatic copying lathes, thread-grinding machines with eccentric relief, tooth-flank grinding machines for bevel grinding, and special sharp grinding machines.

The mechanization of the enterprises of the VVB is to be increased to 75 percent by 1961 and 80 percent by 1956.

In the enterprises of the VVB, 212 tasks of standardization, fixing of types, and established of norms are to be carried out by 1965. Of these tasks, 50 percent are to be completed by 1961 and about 78 percent by 1963. Sixty-five instances of standardization and of establishment of types are to be carried out in the field of grinding tools, 25 in the field of attachments, and 65 in the field of woodworking machines. For example, the existing 840 types of serrated-profile broaching cutters are to be reduced to 380, and the present 1,200 types of broaching cutters for internal gears are to be reduced to 400 types by 1961.

Labor productivity is to increase 125.6 percent in 1965 in comparison with 1958, and production costs are to go down 31.3 percent in the same period.

To insure the supply of power, manufacture of equipment for power production is to be considerably increased. Production of turbines is to increase 218 percent in 1965 in comparison with 1958, of water-tube boilers and high-pressure boilers 169 percent. By 1965, a 300 MW power increase is to be assured through the production of gas turbines with a capacity of 25 MW. Production of steam generators, water purifiers, and pipes is to be centralized in order to achieve greater specialization of enterprises.

VEB Grossdampferzeuger is to be established in Berlin as the leading enterprise for the construction of steam generators. VEB Vorwärmer- und Kesselbau Köthen is to specialize in small coal-fired steam generators up to 6.5 t/h and oil-fired generators up to 12.5 t/h. VEB Dampfkesselbau Gera is to be a specialized producer of ships' boilers and special boilers. In turbine and generator construction, measures must be focused on centralizing the manufacture of assembly groups and of single parts. The current measures are to be carried out by 1963. The shaping of turbine blades without machining is to be done in VEB Industriewerk Ludwigsfelde and is to be centralized by 1963.

Manufacture of generators up to 25 MW is to be centralized in VEB Sachsenwerk Niedersedlitz, and above 25 MW in VEB Bergmann-Borsig, Manufacture of gas turbines of all sizes is to be centralized in VEB Görlitzer Maschinenbau. Manufacture of hydraulic gearing units for locomotives and rail cars is to be centralized in VEB Turbinenfabrik Dresden. To insure that the repair program is on a sound basis, VEB Kesselwerk Neumark is to be made the coordinating plant for repairs of large steam generators. VEB Görlitzer Maschinenbau and VEB Bergmann-Borsig will set up independent repair departments by 1960 and 1963 respectively. VVB Energiemaschinenbau is to make sure that power-generator construction is done in three shifts according to the principles of rapid repair.

In power-generator construction, the modernization of the stock of machines must be carried out by introducing 1,270 new machine tools. The manual abrading of the sealing surfaces of turbine housings is to be superseded through the introduction of special abrading machines. Fifty standardization points in the program for fixing of types are to ensure that the number of pressure stages in steam-generator construction is reduced from 23 to 7, temperature stages from 31 to 8, and capacity stages from 180 to 25. The program to establish types of condensing turbines is to be limited to 10 capacity stages with five pressure and temperature stages, whereby a reduction of types from 21 to 10 is to be achieved. Shielded arc welding, electric slack welding, and magnetic drum welding are to be used in steam generator and pipe construction to improve on present methods. Block and construction group assembly of steam generators, water-purifying installations, and pipe lines is definitely to be used.

By 1962, it must be certain that small boilers, air preheaters, and economizers are produced by assembly line methods. By standardization, specialization of enterprises, and centralization of production, the part played by individual manufacture in total production is to be reduced to 70 percent by 1961, 50 percent by 1963, and 46 percent by 1965. Developing the technical level of the products of power machine construction has above all to aim at raising the capacity units, raising the parameters (pressure and temperature), coupling the cyclic processes of steam turbines and gas turbines, shortening the start-up and shut-off times of steam turbine blocks, and completely automating the starting procedure and the operation. The supply program must include steam generators up to a capacity of 420 t/h and multi-stage turbines, with a capacity up to 100 MW with appropriate water-feed installations, and pipe lines, with parameters up to 160 atmospheres and 535 degrees Centigrade. The production of 25-MW standardized peak-load gas turbine installations is to be undertaken by VEB Görlitzer Maschinenbau by 1962. Hydraulic gearing units with a transmission capacity of 1,000 hp are to be put into production in VEB Turbinenfabrik Dresden by 1961.

In the second half of the Seven-Year Plan, the development and design preliminaries for the construction of nuclear power plants of high-capacity units are to be completed.

Labor productivity in 1965 is to increase 154 percent in comparison with 1958: production costs are to go down 31.97 percent in the same period.

The production of equipment for the building industry, building-materials industry, and brick and tile industry must insure that building is industrialized and that construction work is mechanized. Complete machine systems are to be developed and put into production by 1962 for the full mechanization of super-highway construction; the production of equipment for this purpose is to be increased 128 percent during the period of the Seven-Year Plan. The production of replacement parts is to be

increased 250 percent. Production per square meter of manufacturing area is to be increased to 136 percent in 1961, 146 percent in 1963, and 170 percent in 1965 in comparison with 1958. To coordinate production, leading enterprises are to be set up which will be responsible (a) for the development and production of road-construction, (b) for the brick and tile industry, and (c) for fine ceramics and electroceramics. The production of construction components and assemblies is to be centralized. Five machine assembly lines are to be set up by 1962 for the manufacture of track links for excavators, standardized components for mixers, and special motors for vibration equipment. Seventeen manual assembly lines are to be set up by 1961 in order to mechanize the assembly of silos for building material, chutes, and deep-drilling equipment for rock as well as of bucket dredges and steam shovels.

To achieve centralization of production, the number of types of concrete mixers is to be reduced from 31 to 16, of steam shovels from five to three, and of pulverizing machines from 70 to 39; this is to be accomplished by 1961. The standardization measures are to aim at unitizing building components and assemblies. For example, the entire equipment for the three standard-type universal excavators, such as drag lines, grab buckets, shovels, etc., are to be unitized according to classifications of size and soil.

In plants making concrete components for construction work, a basic piece of equipment with specialized forming attachments is to be introduced which can be used on all kinds of jobs. The research and development assignments must make sure that by 1961 all important equipment for building and for road construction reaches the international level.

Under this come universal power shovels, concrete-surface and black-top road machines, power mixers and free-fall mixers, automatic mixer installations, mixing silos, large plants to make reinforced-concrete components, and machines for making bricks and ceramic components. By 1962, 120 new types are to be put into production. Tower slewing cranes of 100-mt (meter tons) capacity are to be put into production by 1960.

Labor productivity is to increase 198.2 percent by 1965 in comparison with 1958. Production costs are to go down 36.35 percent in the same period.

In the course of the Seven-Year Plan, production of chemical equipment is to increase in value 151.3 percent and of equipment for cooling and air conditioning 74 percent. Production per square meter of manufacturing area is to increase to 151 percent in 1961, 160 percent in 1963, and 212 percent in 1965 in comparison with 1958. By 1963, production of containers, heat exchangers, evaporators, etc., is to be centralized. Special and single-item production is to be reduced from 51 percent in 1958 to 35 percent by 1965.

In cooperation with the chemical industry, standardization and type-establishment progress based on the assembly or prefabricated parts must be worked out for chemical, apparatus construction, for equipment for the rubber and plastics industries, for equipment for soda factories, and for equipment for the cold-storage industry. By 1962, the number of types of large-scale compressors is to be reduced from 37 to 18. To improve the technology of this branch of industry, 25 manual assembly lines and 10 machine assembly lines are to be put into operation by 1961, and a total of 70 manual assembly lines, 29 machine assembly lines, and four automatic assembly lines by 1965.

To renovate the stock of machines, 1,360 new machine tools are to be put into operation in the years 1959 to 1965. Rationalization and invention are to be directed to the modernization of 1,000 machine tools in the years 1959 to 1965. Fifty percent of all welding is to be carried out by means of high capacity

welding processes. Standardized techniques are to be used for duplicating parts and products. In foundries, the new processes are to be introduced by 1961. The output of gas-tight casting is to be raised about 4,000 tons by 1961. By 1965, research teams cooperating with the chemical industry are to carry out 500 developments. Key points of the development tasks are the following:

> One hundred pilot plants are to be turned over to the chemical industry in order to insure that industry utilizes large-scale laboratory research.
>
> Highly effective measuring and controls systems are to be developed for the automation of new and existing production facilities.
>
> Light construction techniques are to be promoted through the use of high-strength and shaped materials, moisture-proof and shock-proof coatings for containers made of VA (vinyl acetate) material and laminated plastics. Completely hermetic and semi-hermetic refrigeration units of medium capacity, up to 20,000 kilogram colories per hours, are to be developed. Assembly of prefabricated machine parts is to be used. The accomplishment of research and development tasks is to be assured through Socialist cooperative work groups, particularly in cooperation with the chemical industry.

Labor productivity in 1965 is to increase 131 percent in comparison with 1958, while production costs go down 37.78 percent in the same period.

General Machine Construction

Textile-machine construction must be directed particularly to manufacturing machines for producing, processing, and finishing chemical fibers and to producing high-capacity machines for processing natural fibers.

Gross production is to be increased 143 percent by 1956, including the manufacture of machines for producing chemical fibers, which is to be increased tenfold, spinning machines to be increased 114 percent, knitting and hosiery machines to be increased 138 percent, and textile-finishing machines to be increased 150 percent. Labor productivity is to increase to 145 percent by 1961, 183 percent by 1963, and 242 percent by 1965 in comparison with 1958.

By 1965, the basic types of machines used by the textile industry are to be reduced from 1,148 to 371. To expand the use of high-capacity machines for special processes (e.g., Malimo, Floretta, and Skelan), the number of their basic types is to be raised from three to ten, and the variety of designs from four to 56. The development work for this program is to be accomplished with simultaneous standardization by 1963.

The basic types of equipment for the production of fashion items, e.g., knitting machines, is to be reduced from 16 to 9, but the output types are to be increased in accordance with the requirements of the textile industry. Twenty-three central production plants are to be built by 1962 for the manufacture of standard parts, such as spindles, ring spinning frames, travellers, and Jacquard loom wires.

To improve the processes used, 46 group assembly sections, 60 mounting assembly lines, 35 machine assembly lines, and 10 automatic assembly lines are to be put into operation.

The degree of mechanization is to be increased to 56 percent by 1961, and about 60 percent by 1965.

Research and development work must insure that, beginning in 1960 or 1961, the textile industry has machines for textile printing according to the Malimo, Skelan, and Floretta processes, space-and weight-saving high-capacity teasles, cotton-spinning and ring-spinning frame machines with spindles of 16,000 rpm and 30 meters per second traveller speed, automated (weaving) machines for cotton with 240 throws per minute, automatic weaving machines for silk with 180 to 200 throws per minute and modern circular knitting machines for the stocking industry.

Twisted-thread machines with 80,000 rpm are to be in zero-series production in 1961 for the manufacture of crepe-twist thread.

In machines for the production of chemical fibers, the technical gap in spinning machines for polyamid silk is to be overcome by 1961, inasmuch as machines with a capacity of 1,500 meters per minute are to be made available. A spinning-pot machine with a spinning speed up to 130 meters per minute is to be put into production in 1961.

The chief tasks in the field of textile finishing machines are setting up assembly lines and building plant complexes for established types of machines. The most widespread utilization of measurement and control techniques is required in order to achieve continuous finishing processes.

To guarantee the further Socialist transformation of agriculture, production of farm machinery and tractors is to be increased 117 percent by 1965. Production of combines is to be increased 517 percent by 1961 as compared with 1958, of 18-hp wheeled tractors 315 percent, and of caterpillar-type tractors over 45 hp 322 percent.

In comparison with 1958, labor productivity is to increase to 178 percent by 1961, 203 percent by 1963, and 224 percent by 1965.

One hundred twenty-eight new farm machines are to be developed and put into production,including a hydraulic-equipped tractor by 1960 and a drive axle for a manure spreader, a combination milking machine for barn and pasture use, and a beet-harvesting machine in light-construction design by 1961.

The development of wheeled tractors on which to mount grass- and corn-silage harvesting machines mustbe quickly completed. The drive unit must be part of a type series, on the basis of which all-wheel drive tractors, rear-wheel drive tractors, and caterpillar-type tractors in the 60-hp class can be produced by the assembly of prefabricated machine parts.

To improve the supply of spare parts, a facility to manufacture them is to be erected by 1961 in VEB Bodenbearbeitungsgeräte Leipzig. By 1965, the production of spare parts for farm machinary is to be increased 320 percent and of tractor spare parts 240 percent. In the interest of reducing the demand for spare parts, the quality of spare parts is to be improved and the requisite maintenance of machines and equipment used in agriculture is to be carried out faithfully.

Manufacture of individual items and production is small series are to be out. Thus the 350 types currently manufactured are to be reduced to 260 by 1965. The production of the remaining types must be done by the system of assembly of standardized components. By centralizing the manufacture of parts, a transition to group assembly or to assembly lines is to be made. Centrally directed plants are to be set up for the manufacture of sprocket wheels, V-belt pulleys, wheel forks, steel bearing boxes, and reaping-machine knives and fingers. Forty-two manual assembly lines, 44 machines assemblylines, and 27 semi-automatic and completely automatic assembly lines are to be put into operation by 1966, of which 20 are to be ready by 1961. Thus the labor required for the production of the items listed above is to be reduced by about 6,100,000 hours.

25X1

The degree of mechanization is to be raised to 58 percent in 1961 and about 61 percent in 1965; the degree of automation is to be raised 5.5 and 7 percent respectively.

For the most part, non-cutting forming machines are to be used in improving the stock of equipment. An increase of the part played by cold and hot shaping is to reach 17 percent by 1965.

To improve product transport, pendulum or circular traffic systems are to be introduced into the larger enterprises.

Automotive Industry and Aviation Industry

Production in the automotive industry is to be increased 75 percent by 1965. Labor productivity is to increase to 135 percent by 1961, 159 percent by 1963, and 186 percent by 1965 in comparison with 1958. Passenger car manufacture is to be the central point of the reorganization plan.

The number of types of passenger cars is to be limited to two, of trucks to four. The number of types and designs of trailers is to be reduced from 84 to 9 and of motorcycles from 46 to 23.

The manufacture of drive shafts, brakes, transmission gears, bodies, and motorcycle parts is to be centralized to a greater degree in specialized enterprises.

To improve the spare-parts situation, another enterprise is to be set up which will manufacture parts for old cars which are no longer made. At the same time as production of spare parts is increased, raising the quality of spare parts and improving vehicle maintenance will reduce the demand for spare parts.

To increase the life of vehicles and to reduce fuel consumption, light-construction methods are to be increasingly used, and new processes of fuel-mixture forming and new types of carburetors are to be developed and put into production. Fuel research is to be strengthened.

Development work on a gas turbine for automotive vehicles is to be carried out by the automotive industry in Socialist cooperation with the aviation industry.

The technology and the manufacturing set-up in automotive manufacture are to be changed so that the degree of mechanization will be increased to 70 percent by 1965, and automation increased to 19 percent by 1961 and 25 percent by 1965.

In addition, 138 machine assembly lines, 60 automatic and semi-automatic assembly lines, and an automatic casting line are to be put into operation.

For the manufacture of small cars, 34 machine assembly lines, 7 automatic assembly lines, and 41 special machines are to be put into operation. The labor required for each vehicle is to be reduced some 75 hours at the final manufacturing point, making a reduction of 100 hours altogether.

In order to increase the part played by non-cutting shaping, at least 1,400 non-cutting shaping machines are to be put into operation by 1965. Furthermore, automatic feed and receiving equipment, as well as counting devices, are to be constructed in order to replace manual labor in the press department.

25X1

Automatic resistance welding is to be used to a greater extent, e.g., butt-welding, spot-welding, projection welding for making small parts, and seam-welding for completing units.

To improve surface protection, manual paint-spraying now employed is to be replaced by dipping processes. For lacquering, ovens through which the vehicles pass are to be used and are to have convection and infrared drying chambers.

Further improvement in quality must be backed up by better quality testing, including the use of gamma defecoscopy and of tagged atoms in wear testing.

Galvanizing departments, including grinding processes, are to be modernized in order to get rid of heavy manual labor and work that is a health hazard.

The production of rail cars is to be increased 194 percent.

The output per square meter of manufacturing area is to be increased to 132 percent by 1961, 160 percent by 1963, and 179 percent by 1965 in comparison with 1958.

A comprehensive clean-up of the program is to be undertaken. The number of basic types is to be reduced from 42 to 34 by 1961; the number of standards is to be increased from 220 to 440. The development of diesel motors up to 2,400 hp is to be completed by 1965.

Mechanization of the production of locomotives and cars is to be increased to 32 percent through the development of 63 more manual assembly lines and 10 machine assembly lines, and mechanization is to be increased to 70 percent in the delivery enterprises (Zulieferbetriebe).

The manufacture of coil springs in VEB Federn-Werk Zittau is to be automated by the first quarter of 1960, and wheel-set production in VEB Radsatzwerk Ilsenburg is to be automated by 1963. In VEB Fahrzeugausrtstung Berlin, the automation of grinding by carbonized wheels is to be completed by 1963.

In the period from 1959 to 1965, 1,070 new machine tools are to be put into operation. Furthermore, 113 modernization projects for equipment are to be carried out.

In order to reduce the ratio of tare to useful load in refrigerated freight cars, more rugged light-construction members and foamable non-hygroscopic insulating materials are to be produced and utilized.

The motive power is to be improved by the use of fast diesel motors and completely hydraulic transmissions. Modern air-conditioning equipment is to be installed on long-distance coaches, and in all cars the electric equipment is to be brought up to the most modern technical level.

Labor productivity is to increase 109.7 percent in 1965 in comparison with 1958.

Production costs will be reduced in the amount of 362,000,000 DM in the years 1959 to 1965. That corresponds to a reduction of 27.83 percent in 1965 in comparison with 1958.

The aviation industry is to increase its production 210 percent by 1965 in comparison with 1958.

25X1

Investment activity through 1965 is to be directed to specializing and rounding off the existing facilities developing and producing airframes, jet engines, and aviation equipment.

The transition to series production in the manufacture of jet passenger aircraft is to be completed by 1961. The specific fuel consumption of jet engines is to be reduced 30 percent, and the life of the engine is to be increased. The running time of the ASh 82 T piston engine before the first general overhaul is to be increased to 1,000 hours by 1961.

The ratio of non-cutting shaping to machining in airframe construction is to be improved from 1 : 2.6 to 1 : 1.8 by 1965. This requires that technical processes used hitherto be replaced by chemical reduction and that mechanical press capacity be expanded. Assembly lines are to be set up for parts assembly, for equipment, and for final assembly of airframes.

Series production of jet engines is to be rationalized by the use of special cast parts and precision-forged parts. Parts production, assembly for series production, and repair of jet engines are to be carried out on assembly lines. Welding technique in jet-engine production is to be raised to the highest technical level through the use of programmed control.

Hydromechanical devices are to be standardized and are to be produced in series.

Through the reorganization measures, an increase in labor productivity of a least 150 percent is to be reached in this branch of industry by 1965 in comparison with 1959.

Measuring and Regulation Techniques and Hydraulics

The technical level of machine-construction products and the tempo of automation will be determined to a definite degree by the development of measuring technique, control technique, and hydraulics. These branches are therefore to be so developed that they will reach the international level by 1961, and cover requirements by the end of 1961.

The production of measuring devices and control devices is to be increased threefold in 1965 in comparison with 1958.

Labor productivity is to increase to 132 percent by 1961, 195 percent by 1963, and 228 percent by 1965.

Components and assemblies are to be standardized and produced in large series. Large-series production is to be carried out, especially in tachometers, pressure gauges, and thermometers.

A 100-percent specialization is to be carried out by 1965. Furthermore, the basic types in the pressure-gauge program are to be reduced from 54 to 10 by 1961, and the basic types in the flow-meter program and the inferential flow-meter program are to be reduced from 60 to 12.

The international uniform assembly of prefabricated machine parts is to be imposed on the regulator program which is currently being worked out. Isotope techniques are to be applied in the construction of regulation equipment, particularly for the measurement of content.

To improve techniques, 30 manual assembly lines and 10 machine assembly lines are to be set up. The production of Woltman counting devices and of oval-disk meters, signal relays, manometers, and thermometers is to be mechanized or to be automated. The assembly of medium-size and small manometers and thermometers is to be done by assembly line in VEB Messgerätewerk.

In VEB Regler- und Gerätewerk Teltow, unit production is to be introduced in the manufacture of large-quantity flow meters. The production of cylindrical counters is to be partly automated in VEB Messgerätewerk Quedlinburg. VEB Intron Leipzig and VEB Gerätewerk Teltow are to be built up as centers of measurement and control technology.

Research and development work in this field is to be directed so that all apparatus coming within the international uniform regulation system for multiple regulation circuits reach the highest technical level by 1961. Thereby the possibilities of utilizing the devices will be expanded, e.g., designs that are protected against the shock of explosions and are weatherproof. This pertains to the production of feeler gauges, data converters, measurand (sic) converters, electrical pressure transmitters, unit regulators with nominal value setting and return, power amplifiers and servomotors, long-range transmitters, and second-measurement apparatus.

The production of hydraulic components and assemblies is to be increased eightfold or more by 1965. At least 75 percent of the hydraulic components are to be produced in standard designs by 1965. The components are to be so shaped that they can be put together by the assembly of prefabricated machine parts.

In order to attain the highest technical level in this branch of industry, the development of axial piston systems is to be speeded up so that they can be put into production by 1962. The production of hydraulic components is to be centralized in ten enterprises, and the construction of hydraulic installations and models is to be centralized in two enterprises. Thus, for example, this production of high-pressure gear pumps is to be centralized in VEB Pumpenwerk Karl-Marx-Stadt, and the production of pressure regulating valves in VEB Hydraulik Rochlitz.

To improve production techniques, eight manual assembly lines and seven machine assembly lines are to be put into operation, including lines for the production of working cylinders by 1960 and for the production of valves by 1963.

Electrical Engineering

The technical development of machine construction and of other branches of the economy, such as transport and communications systems, will certainly be influenced by electrical engineering. For that reason, production capacity, technology, and the technical level of the products of electrical engineering are to be given priority in development.

Since components of modern apparatus and installations for communications and of measuring instruments which meet world standards occupy a key position, the production of the industry branch for component parts and vacuum technology must increase in value from 485,000,000 DM in 1958 to 1,600,000,000 DM in 1965.

Production of the most important items is to be increased as follows:

	1958	1961	1963	1965
Transistors (in millions of items)	0.4	3.0	10.0	20.0
Diodes " " " "	05.	4.0	8.0	12.5
Germanium and silicon rectifiers (in millions of items)	0.2	2.0	3.2	3.6
Picture tubes (including radar) (in thousands of items)	143.	633.	935.	1,078.
Receiver tubes (in millions of items)	13.9	20.0	21.9	25.5
Ferrites " " " "	24.8	72.6	82.8	91.8

In order to achieve the planned production of semiconductor components, the construction of the new plant in Frankfurt/Oder is to be completed by 1962. The capacity which will become free in tube plants is to be used for the construction of semiconductor components. The development work is to be organized by the Industry Institute for Semiconductor Techniques in Teltow so that there will be a regular masss production of HF transistors up to 6 megacycles by 1960, NF transistors up to 12 W capacity by 1961, and microwave transistors up to 350 megacycles by 1962.

Electrical engineering facilities are to be set up for the manufacture of special equipment in order to cover the demand for components for specially manufactured apparatus of this branch of industry, and these facilities are to be in operation beginning in 1960.

A higher degree of mechanization and automation of the production of semiconductor components is to be achieved by 1961 through the use of six assembly lines. The following priority problems are to be solved in this program:

> Crystal-growing from germanium and silicon and the mechanical surface treatment of semiconductor materials: for the manufacture of transistors and power retifiers based on germanium and silicon at the Halbleiterwerk Frankfurt/Oder, and for diode manufacture in the Werk für Fernmeldesesen Berlin.

Lacquer-film condensers and tantalum condensers are to be put into production as important new products in 1961. The calibration of condensers and resistances is to be covered; their upper temperature limites and capacities are to be increased.

Development work, moreover, must extend to the following: metal film resistances of the highest precision, time constancy, and maximum capacitance; miniature plug connections for microwave and highest frequency technique, having a wave resistance of 50 to 75 ohms.

Through new technical processes, the electro-chemical treatment of aluminum foils is to be replaced by electro-erosive roughening, and the strain-hardening process with epoxides is to be introduced.

High-capacity machines for winding and edging, automatic assembly of components, and automatic copying, measuring, stamping, and packing are to be used to raise the level of mechanization and automation in the manufacture of condensers.

Beginning in 1960, four manual assembly lines are to be put into operation for the manufacture of potentiometers.

Orderly stock rooms for components are to be used and are a prerequisite for partially and full automated production of equipment.

By taking up the production of wide-angle television picture tubes, the world level in this field is to be reached.

In research and development work, the introduction of voltage grid technique in receiver tubes is to be completed by 1961 to raise quality; long-life tubes with 10,000 hours guaranteed operation are to be produced by 1961; and the development of transmitter tubes for microwave techniques is to be achieved by 1961. Color television is to be developed rapidly.

For the further improvement of manufacturing methods in vacuum technology, the transition to the product principle (Erzeugnis-Prinzip), the replacement of gas heating by radiant heating in pump mountings, and the introduction of automatic forming through programmed control in metal-ceramic tubes are all to be taken up by 1962.

Picture tube manufacture is to be fully mechanized by 1960 through putting four intermittent-flow assembly lines into operation.

Grid production is to be partially automated. Machine assembly lines are to be constructed for the production of electronic tubes. Automatic production units are to be used for the manufacture of fluorescent lamps and four new high-capacity automatic machines for the production of all-purpose lamps are to be put into operation by 1961.

The packing of tubes and incandescent lamps, condensers, and resistances must be done by automatic machines by 1961.

The world level in all ferrites is to be reached by 1961 through using modern production processes. For this purpose, completely automatic presses are to be used which will guarantee even thicknesses in pressing processes.

Individual production lines are to be combined in intermittent-flow assembly lines and automatic assembly lines. Measuring devices and automatic machines for testing products are to be developed and are to be coupled to the packing and stacking machines.

High-vacuum sintering units for the production of high-grade ferrites are to be put into operation by the end of 1960.

To hasten the introduction of large-scale production of high-grade ferrites, e.g., those with high permeability and slight losses, the chemical industry is to produce adequate quantities of highest-frequency ferrites, quadrangular ferrites with special characteristics, suitable oxides, and manganese carbonates of high purity. Likewise the continuous delivery of silicon carbide in prescribed grain size is to be assured.

The large-series production of ferrites is to be centralized in VEB Keramische Werke Hermsdorf.

VEB Werk für Bauelemente der Nachrichtentechnik "Carl von Ossietzky" Teltow is to produce special ferrites in small series for the development of new communications devices as well as for electronic computers, guidance devices, and control apparatus.

In the industry branch for construction components and vacuum technology, the reorganization measures are to achieve an increase of labor productivity of 168.8 percent and are to lower production costs about 50 percent.

The production of the radio and television industry is to be developed by 1965 as follows:

	1958	1961	1963	1965	61 : 58	65 : 58
Millions of DM	520.0	1,066.0	1,315.0	1,616.0	205.0%	311 %

The production of important items is to be increased as follows:

Thousands of items	1958	1961	1963	1965	61 : 58	65 : 58
Television receivers	180	560	650	760	312 %	422 %
Portable radios	44.6	191	214	263.8	428 %	590 %

Thirty percent of the families of the DDR will be provided with television receivers by 1961.

The introduction of new products and the reorganization measures will mean that by 1962 the world level will be reached in most products, for example, in ordinary radios, car radios, and portable radios and in television receivers. In order to reach the world technical level with all speed, research and development are to concentrate chiefly on the following:

Introduction of radio and television receivers haveing printed circuits and based on standardized assemblies and components.

Introduction of all-transistor receivers.

Particularly important technical measures are the following:

Introduction of automatic immersion soldering, beginning in 1960.

Utilization of cut-band cores (Schnittbandkerne) in the industry, beginning in 1960.

Use of semi-automatic tube-mounting machines, beginning in 1961.

There will be a strong specialization and centralizaion of production based on established types and standardization. Beginning in 1961, there will be only two basic types of television receivers to produce instead of 11 types. Manufacture will be centralized in two enterprises instead of in four.

The number of types of radio receivers is to be reduced from 33 in 1958 to 14 in 1961, and to nine basic types in 1965. At the same time, there will be a reduction in the number of enterprises engaged in production from the present 17 to six in 1965.

The degree of mechanization in the radio and television industry amounted to 24.1 percent in 1958. By 1961, it is to be raised to 29.2 percent, and to 51.0 percent by 1965. The degree of automation is to be raised from 0.2 percent in 1958 to 4.3 percent by 1965.

VEB Kunden- und Garantiedienst, which was established in 1959, is to cooperate with the unions of radio servicemen and with other specialists to form a broad network of repair enterprises in order to cover the requirements for repair of radio and television receivers. In particular, the supply of spare parts is to be assured by this means. These measures are to be carried out everywhere by the local agencies of the State on their own responsibility, and they are to support them and check up on them.

Socialist reorganization is to increase labor productivity in the radio and television industry 253 percent by 1965 in comparison with 1958.

A priority requirement is the readiness for operation of the equipment for transmitting electric power, particularly in connection with the extension of the 220 kilovolt unified power transmission grid, as well as for power transmission of 380 kilovolts from the power-plant complex of the Cottbus region.

Therefore the production of transformers is to be increased 143 percent by 1965 in comparison with 1958, of high-tension switching devices 270 percent, and of cables and wires to more than double. In addition, the number of types of transformers and transducers is to be reduced by 65 percent in 1965.

To improve technology and thus to facilitate the achievement of standardization and establishment of types, standard transformers up to 1,600 KVA are to be put into production beginning in 1960. The weight of materials used in power-transformers is to be reduced at least 20 percent through the use of textured plates (Texturbleche) and by a change of design beginning in 1960.

Beginning in 1964, production of large transformers of 630 MVA in a special circuit design (Bankschaltung) for 380 KV, as well as 250 MVA for 220 KV, is to be assured in three-phase design.

The production of current and voltage converters is cast-resin design is to be mechanized by 1962.

The planned increase in production of high-tension switch gears is to be achieved chiefly through assembly of prefabricated machine parts and by limiting the previously used four breaker principles to two, namely pressure gas principle and oil-poor principle, and the organization of assembly-line production by 1962.

The expansion of testing facilities for high-power electric technology is to be speeded up, so that beginning in 1961 all possible means of testing will be ready for the planned program for producing high-voltage equipment.

To cover the most urgent needs for cables and power lines, and to overcome the dislocations in this field by 1963, the variety of types is to be strictly limited. The number of types is to be reduced from 52,000 to 10,000 by the end of 1959, and to 8,000 by 1963.

Production facilities are to be modernized through the use of high-capacity cable machines. Thus heavy machine construction has the priority task of drawing up new designs according to the most modern techniques in the following fields:

> Aluminum-sheathing presses, machines for insulating high-tension cables and for low-voltage wires, paper-stretching machines for wire wrappings, modern twisters and core-twisting machines for electric wires and cables, machines to produce granulated material (Granulat), plastic-spraying machines, and machines to make armored cable.

The following must be included in manufacturing processes: continuous vulcanization of rubber-insulated electric wires by 1960, automatic control of thickness and centering in the sheathing of plastic-insulated wires by 1961, thickness measurement (Banddickenmessung) by means of isotopes by 1962, pneumatic conveyor equipment for fillers and granulated materials by 1962, fully automated wrapping machines and fully automatic testing equipment by 1963, drawing machines with built-in lamp- and cup-wrapping equipment (Glüh- und Topfwickeleinrichtung) by 1963, and mechanized production of tube wires whose stranding will be done on newly developed machines. For the expansion of modern industrial installations and to assure highly productive manufacturing plants in connection with the automation, the electrical design and installations construction branch of the industry is to increase its production 230 percent, including a 400 percent increase in low tension switch installations and a 78 percent increase in mountings.

To achieve a rational utilization of the project and design capacity and to get through the necessary project preliminaries, it is necessary, beginning in 1960, to use standard construction methods according to norms, as well as to assemble prefabricated parts and introduce type designs.

Project capacity is to be specialized and centralized and is to be coordinated by the electric project design and installations construction branch of the industry. In project and design offices, rational procedures such as printing and photo-reproduction are to be introduced by the end of 1959.

The project-design and installations-construction enterprises, through their technical-scientific centers, will exercise a stronger influence on the development and manufacture of more efficient products by the apparatus-construction industry in order to correspond to the latest technical level.

The installations-construction enterprises are to specialize according to definite programs. Through this specialization, labor productivity is to increase 143 percent during the course of the Seven-Year Plan in comparison with 1958, and the part played by workshop manufacture is to increase 350 percent.

In the plastics processing industry, production is to increase from a value of 500,000,000 DM in 1958 to two billion DM in 1965. The volume of consumer-goods production in relation to total production is to increase from 8 percent in 1958 to 15 percent in 1961 and to 20 percent in 1965.

Thus plastics production per capita in the DDR will increase from about 4.7 kilograms in 1959 to 7.0 kilograms in 1961 and to 16 kilograms in 1965.

A marked centralization of production is to be carried out in order to make the greatest possible use of existing capacity. The Staaken and Schwerin plants are to be expanded to plastics processing enterprises, and thus an increase of production capacity for thermoplastic and thermo-setting plastic products is to be created. Production will commence in Staaken in the first quarter of 1960, in Schwerin by the end of 1960. Nine enterprises are to specialize in order to cover the electrical industry's requirements for plastics.

VEB Presswerk Spremberg is to be used to supply sleeve bearings and laminated pressed material for machine construction, and in 1961 the new enterprise in Schwerin is to produce controls components.

In producing equipment for processing plastic materials, double profile machines are to be used, forms made of epoxy resins filled with metallic powder are to be introduced more and more, and extrusion processes and cold hobbing will be employed.

Through these measures, the production of such equipment is to increase about 5,000,000 DM in value by 1965. This means an increase in value of 170 percent. The production of this equipment is to be centralized in the following enterprises: VEB Presswerkzeugbau Grossdubrau, Presswerk Triptis, Presswerk Tambach-Dietharz, Presswerk Ottendorf-Okrilla, Presswerk Köppelsdorf, and Presswerk Spremberg.

Existing machines are to be modernized by building in automatic dosage, feed, and trimming equipment, using control devices for molding time, and converting from manual to mechanical and hydraulic operation.

Semi-automatic and fully automatic presses for thermo-setting plastics, high-speed spraying machines with preplasticization and fully automatic preforming presses with heatable molds and weight batching for powder and chopped molding materials as well as automatic finishing machines, are to be introduced. The conveyance of materials is to be mechanized through the use of conduit systems, and in addition they will use multiple tools and HF (high-frequency) preheating devices.

In order to achieve a high degree of mechanization on and automation of production, large-series production will include the following

Condenser sockets in Presswerk Buna by 1961

Table telephones in Presswerk Köppelsdorf by 1962

Screw caps in Presswerk Groetzsch, in the first stage by 1962.

The automation of the production of installation materials in Presswerk Probstzella is to be completed by 1962.

Reaching the highest level of technical development requires the application of new processing techniques for high-quality materials. The production of parts from resins reinforced by fiber glass (polyesters and phenol) for machine construction, vehicle construction, the building industry,etc., is to be assured in a short period of time, as are the blowing of hollow ware of polyethylene for the packaging industry (canisters, bottles, and special containers), the application of ornament to thermo-setting plastic parts through printing processes, and the production of printed circuits by the silver printing process.

Labor productivity in the plastics processing industry is to increase to 382.5 percent by 1965, and production costs are to go down 27.9 percent at the same time.

Casting and Forging

Socialist reorganization in the casting plants of the DDR must lead to using new techniques and high-production processes, to raising the quality of shaped cast (dead-mold cast) products, to rapidly increasing the part played by precision casting, and to overcoming technical backwardness and getting rid of heavy manual labor.

To increase the part played by highly productive casting processes using no sand or little sand, priority development is to be given to permanent-mold casting, pattern casting and precision casting with the last-wax process.

In increasing the total production of cast iron from 851,000 tons in 1959 to 1,268,000 tons in 1965, the part played by modern production processes is to be increased from 397,000 tons in 1959 to 770,000 tons in 1965.

The production of cast iron by the permanent-mold casting process is to be increased to 44,000 tons in 1959, 90,000 tons in 1961, and 200,000 tons in 1965.

For this purpose, VEB Eisenhammerwerk Dresden-Dölzschen is to convert to highly mechanized special casting installations and expand production to 60,000 tons by 1964, and VEB Leipziger Eisen - und Stahlwerk is to expand production to 35,000 tons by 1965.

Production in steel form casting by the permanent-mold process is to be increased from 1,300 tons in 1959 to 4,500 tons in 1961 and to 15,000 tons in 1965. For this purpose, VEB Hans-Ammon-Eisenwerke Eberswalde, VEB Stahl- und Hartgusswerk Bösdorf, and VEB Eisengiesserei and Maschinenfabrik Dessau are to set up to fully mechanized chill casting departments.

The production of malleable cast iron by the chill-casting process is to increase from 1,300 tons in 1959 to 3,500 tons in 1961 and 8,000 tons in 1965.

By 1964, VEB Eisenwerk Schönheiderhammer is to be expanded as a fully mechanized permanent-mold casting installation for malleable cast iron.

Through the use of the permanent-mold casting process, there is to be an increase of the annual per capita production of molded cast iron and steel from 25 tons to 100 tons and of malleable cast iron from 12 tons to 110 tons.

Production costs for cast iron are to be lowered an average of 35 percent in permanent-mold casting in comparison with the use of sand-mold processes.

In order to increase rapidly the part played by precision casting in all molded casting production, the processes for precision casting are particularly to be developed in accordance with the lost-wax process, the pattern processes, the CO_2 process, and the extrusion process.

The production of precision casting by the lost-wax process is to increase from 120 tons in 1959 to 1,000 tons in 1965. For this purpose, production in VEB Metallgusswerk Leipzig and in VEB Industriewerk Ludwigsfelde will be increased, and a new precision casting installation in Lobenstein (Thuringia) will be constructed, beginning in 1961, with its capacity to be developed to 400 tons by 1965.

The production of molded cast iron by the pattern process is to increase from 3,880 tons in 1959 to 30,000 tons in 1965.

For this purpose, the pattern-casting installation in VEB Eisenwerk Erla is to be mechanized by 1960, that in VEB Stahlgiesserei Elstertal, Silbitz (Werk Rasberg), by 1962, and that in VEB Nähmaschinenwerk Wittenberge by 1965.

To increase the production of shaped cast-steel by the CO_2 process from 17,000 tons in 1959 to 59,000 tons in 1965, VEB Stahlgiesserei Elstertal is to be mechanized, beginning in 1962 and completed by 1964.

In order to increase the production of molded light metals by the extrusion process from 5,000 tons in 1959 to 6,700 tons in 1961 and 17,100 tons in 1965. VEB Metallwerk Harzgerode is to be expanded, beginning in 1962 with a capacity of 3,000 tons and increasing to 8,500 tons in 1965. The part played by molding without sand in light-metal casting is to be increased to 70 percent by 1965.

A capacity for 2,000 tons of weldable malleable cast iron is to be created in VEB Eisenwerk Schonheiderhammer by 1961.

To increase production and improve quality, rejects are to be reduced on avage of 25 percent in comparison with 1959.

A comprehensive program clean-up is to be carried out in order to overcome the dispersal of foundry work. Casting programs for the chief customers are to be centralized in small foundries, e.g., large fittings (Armaturen) in VEB "I. Mai" Tangerhütte, and small fittings in VEB "E. Weinert" Magdeburg, VEB Industriearmaturen Leipzig, and VEB Industriearmaturen Rosswein.

In 1960, the programs for fittings, switching gears, stoves, vehicles, and textile machines made by casting, polygraphic machines, and enamel casting (Emailleguss) are to be brought together in a few foundries. In 1961, the programs for machine tools, pumps, compressors, farm machinery, and gas-tight and pressure-proof casting are likewise to be brought together in a few foundries.

Production according to specialized programs is to be mechanized as far as possible. For example, manufacture of electrical switch gears is to be mechanized in VEB Stahlgiesserei Copitz-Heidenau and VEB Schaltgerätewerk Grimma, and casting for vehicles is to be mechanized in VEB Metallgusswerk Leipzig and VEB Eisengiesserei Erla.

VEB Giesserei und Maschinenbau "Ferdinand Kunert" Schmiedeberg is to be developed to supply the foundry industry more adequately with casting equipment, so that by 1962 all types of casting equipment up to a casting size of 1,000 mm. and of extrusion machines up to a size of GDH 250 will correspond to the world technical level. The capacity of VEB Leipziger Eisen-und Stahlwerke is to be expanded by 1962 for the construction of foundry installations and equipment, and new capacity is to be created in the machine-construction industry.

To improve the stock of machines, 1,350 new casting machines are to be set up by 1965. To get rid of manual labor in core-making installations, 1,100 core-shooting machines (Kernschiessmaschinen) are to be put into operation. Two-hundred thirty new extrusion presses are to be erected in extrusion casting installations in order to increase capacity and to renovate the stock of machines.

In order to save raw materials and to reduce production costs in machine-construction enterprises, foundry products are to be given preliminary processing right in the foundries. Preliminary roughing capacity which now exists is to be expanded, and new capacity is to be created.

To improve quality control, nondestructive testing of materials is to be used in the most important foundries. Thus gamma defectoscopy will be introduced into 11 foundries by 1960 and into five more foundries by 1963.

Comprehensive measures are to be taken against the hazard of silicosis. The polishing process heretofore used is to be replaced wherever possible by wet polishing and use of sand-free jets.

Production of iron granulite is to begin in VEB Eisenwerk Arnstadt in 1960.

Labor productivity in the foundries of VVB Giessereien is to increase 18.2 percent by 1961, 32.4 percent by 1963, and 53 percent by 1965.

Production costs are to go down 6.8 percent by 1961, 10.8 percent by 1963, and 16.3 percent by 1965.

Socialist reorganization in the forges must lead to overcoming technical backwardness and to getting rid of heavy manual labor through the use of new equipment and the modernization of existing equipment.

Production of drop-forged pieces is to increase 65 percent by 1965 in comparison with 1958, and production of free-form forged pieces is to increase 24 percent. The production increase in drop-forging is to be attained through centralization of production, comprehensive program clean-ups, mechanization of whole production departments, and erection of assembly lines.

In VEB Press- und Schmiedewerk "Einheit" Brand-Erbisdorf, a capacity of 5,000 tons for precision-forged pieces is to be created by 1965.

VEB Industriewerk Ludwigsfeld in 1959 is to begin the production of turbine blades for jet engines and power plants, and all requirements are to be covered by this enterprise by 1963. In VEB Schwermaschinenbau "Heinrich Rau" Wildau, production is to begin in 1961 and is to increase to 15,000 tons by 1962 with the construction of rolling mills to make annular shapes for ball-bearing races of 80- to 400 mm. diameter.

Assembly-line production with inductive heating is to be taken up by 1962 in VEB Flanschenwerk und Gesenkschmiede "Auf Friedenswacht" Bebitz, and mechanical processing is to be automated. The newest discoveries regarding metal heating with medium-frequency heating devices are to be applied in the production of turbine blades, ball-bearing races, and precision-forged pieces.

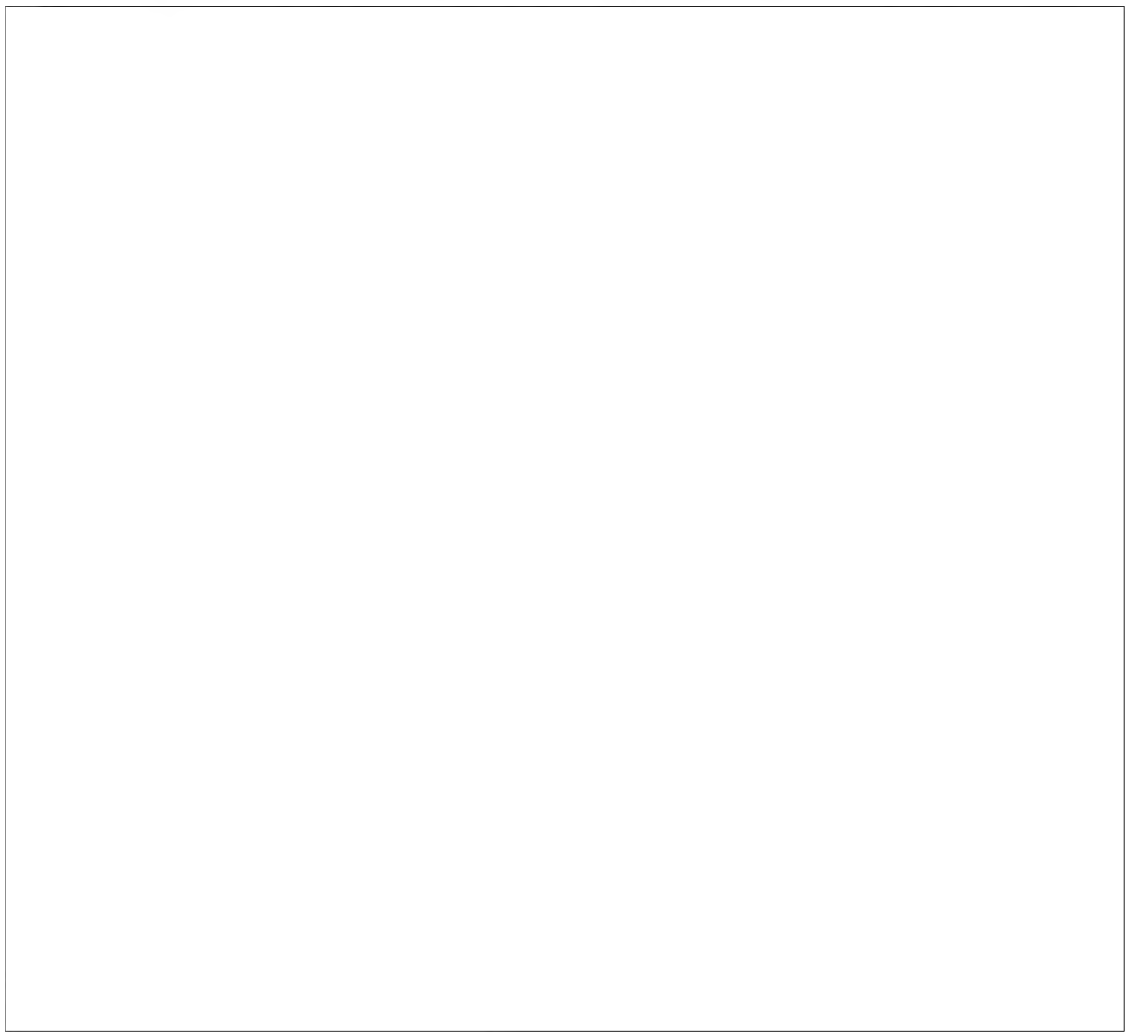
In order to increase the production of free-form forged pieces, a 1,000-ton forge press is to be set up in VEB Stahl- und Walzwerk Gröditz by 1962, a 2,000-ton forge press in VEB Edelstahlwerk "8. Mai 1945" Freital, and two bridge hammers (sec - Brückenhämmer) in VEB Press-und Schmiedewerke "Einheit" Brand-Erbisdorf.

A comprehensive reorganization and expansion of thermal retreatment equipment is to be carried out to improve the quality of forge products and to perfect the technical processes in the whole forging industry. For this purpose, nine non-flaking annealing furnaces are to be set up in VEB Stahl-und Walzwerk Gröditz by 1963. The construction of an annealing-furnace installation and a heat-treatment installation is to begin by 1960 in VEB Edelstahlwerk "8. Mai 1945" Freital. The first expansion stage is to be completed in 1963, and final capacity is to be ready in 1965.

To increase the part played by pre-processed forged items, a workshop for pre-processing is to be constructed in VEB Stahl- und Walzwerk Gröditz.

In order to get rid of heavy manual labor and to increase labor productivity further by 1961, ingot ejection equipment, manipulators, and modern conveyor equipment are to be installed in the plants of VEB Schwermaschinenbau "Heinrich Rau" Wildau, VEB "Ernst Thälmann" Werk Magdeburg, and VEB Press- und Schmiedewerke "Einheit" Brand-Erbisdorf.

To raise quality and to lower rejects, nondestructive testing of materials by means of radio-active isotopes is to be used in VEB Stahl- und Walzwerk Gröditz and VEB Waggonbau Görlitz by 1960 and in VEB Waggonbau Dessau by 1961.



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